MATH 011: Calculus I

Term: 2020 Winter Session Instructor: Staff Language of Instruction: English Classroom: TBA Office Hours: TBA
Class Sessions Per Week: 6 Total Weeks: 4 Total Class Sessions: 25 Class Session Length (minutes): 145 Credit Hours: 4

Course Description:

This course discusses the following topics: functions; limits; continuity; derivatives; differentiation of algebraic functions; rules of differentiation, exponential, log, trigonometric, and inverse trigonometric functions; applications to maxima, minima, and convexity of functions; the definite integral; the fundamental theorem of integral calculus; applications of integration and simple substitution.

Course Materials:

Essential Calculus: Early Transcendentals, James Stewart, 2nd edition

Course Format and Requirements:

Attendance

Students are expected to attend and participate in class. Strong attendance and participation are good indicators of success. Each student is responsible for all course material, announcements, quizzes and exams made in class, whether or not the student attended that day's class.

Grading Scale:

A+: 98%-100%

A: 93%-97%
A-: 90%-92%
B+: 88%-89%
B: 83%-87%
B-: 80%-82%
C+: 78%-79%
C: 73%-77%
C-: 70%-72%
D+: 68%-69%
D: 63%-67%
D-: 60%-62%
F: Below 60%

Course Assignments:

Quizzes

There will be 7 quizzes administered through the whole semester and the two lowest scores will be dropped. Quizzes will always be completed in the first ten minutes of class. The quiz problems will be similar to homework problems and in-class examples. There will be no make-up quizzes.

Midterm Exams

There will be two midterm exams in this course. The midterm exam will be based on concepts covered in class. It will be in-class, close-book and non-cumulative.

Final Exam

The final will be cumulative and close-book. Note that the final will not be taken during the normal class times. Exact time and location for final will be announced later.

Course Assessment:

Quizzes (5 out of 7)	15%
Midterm Exams 1	25%
Midterm Exams 2	25%
Final Exam	35%
Total	**100%**

Course Schedule:

Week 1- Class 1	Week 1- Class 2
Review of Algebra and Trigonometry: Diagnostic Tests for Algebra Analytic Geometry Functions	Functions and Limits: Functions and Their Representations A Catalog of Essential Functions
Week 1- Class 3	Week 1- Class 4
Quiz 1 Functions and Limits: The Limit of a Function Calculating Limits	Continuity Limits Involving Infinity
Week 1- Class 5	Week 1- Class 6
Derivatives: Derivatives and Rates of Change The difference quotient, definition of derivative,	***Quiz 2*** Derivatives: Secant lines, average and instantaneous velocity Tangent lines
Week 2- Class 7	Week 2- Class 8
Derivatives: The Derivative as a Function Basic Differentiation Formulas	***Quiz 3*** Derivatives: The Product and Quotient Rules; Trig functions
Week 2- Class 9	Week 2- Class 10
Derivatives: The Chain Rule Related Rates Review for midterm 1	***Midterm exam 1***
Week 2- Class 11	Week 2- Class 12
Implicit Differentiation	Exponential Functions

Linear Approximations and Differentials	Inverse Functions and Logarithms
Week 3- Class 13	Week 3- Class 14
Quiz 4 Derivatives of Logarithmic and Exponential Functions Exponential Growth and Decay	Exponential Growth and Decay (Cont.) Inverse Trigonometric Functions
Week 3- Class 15	Week 3- Class 16
Quiz 5 Hyperbolic Functions Indeterminate Forms	L'Hospital's Rule Maximum and Minimum Values
Week 3- Class 17	Week 3- Class 18
Quiz 6 Maximum and Minimum Values (Cont.) The Mean Value Theorem	Derivatives and the Shapes of Graphs; Concavity Review for midterm 2
Week 4- Class 19	Week 4- Class 20
Midterm 2	Curve Sketching Optimization Problems
Week 4- Class 21	Week 4- Class 22
Newton's Method Antiderivatives	Integrals: Areas and Distances The Definite Integral
Week 4- Class 23	Week 4- Class 24
Quiz 7 Integrals: Evaluating Definite Integrals The Fundamental Theorem of Calculus	The Substitution Rule
Week 4- Class 25	***Final Exam (Cumulative): TBA***
Wrap-Up Review for Final	

Academic Integrity:

Students are encouraged to study together, and to discuss lecture topics with one another, but all other work should be completed independently.

Students are expected to adhere to the standards of academic honesty and integrity that are described in the Shanghai Normal University's *Academic Conduct Code*. Any work suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

Special Needs or Assistance:

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.